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ABSTRACT

Upward Bound was a precollege program geared for high school students with potential who had been handicapped by economic, cultural, and educational deprivation. It involved a full-time summer program and follow-up programs (counseling, cultural activities, and physical education) during the academic year. Students stayed in the program for three consecutive summers and were instructed in language arts, mathematics, study methods and techniques, and perceptual skills. Academic skills were stressed to encourage an enduring desire to pursue a college education or some kind of post secondary school training. Curriculum and teaching methods are generally described along with specific examples of word games, dictating exercises, and language study units. (KG)

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IT WORKS

SUMMER UPWARD BOUND
Terre Haute, Indiana

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Secondary Program in Compensatory Education 4

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TERRE HAUTE, INDIANA

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FOREWORD

This project report is part of an independent study of selected exemplary programs for the education of disadvantaged children completed by the American Institutes for Research in the Behavioral Sciences, Palo Alto, Calif., under contract with the U.S. Office of Education.

The researchers report this project significantly improved the educational attainment of the disadvantaged children involved. Other communities, in reviewing the educational needs of the disadvantaged youngsters they serve, may wish to use this project as a model - adapting it to their specific requirements and resources.

Bureau of Elementary and Secondary Education

SUMMER UPWARD BOUND
TERRE HAUTE, INDIANA

Introduction

Upward Bound was a precollege program designed for high school students with potential who had been handicapped by economic, cultural, and educational deprivation. Its aim was to help those students throughout high school and to encourage them to continue into higher education. It involved a full-time summer program and follow-up programs during the regular school year. Students joining the program stayed in it for three consecutive summers.

The students were recruited from high schools of the Terre Haute and Greater Indianapolis areas. Each student had to meet the following criteria to be eligible for the program: have completed 15 credit hours by the time of admission into the program; be unmarried; have a recommendation from a teacher or counselor testifying that he had potential to do college work; come from a family whose income did not exceed a maximum set by the Office of Economic Opportunity; and have the ability to exceed his level of achievement at time of admission into the program.

There were 76 students enrolled in the 8-week summer session of 1966. Approximately 55% were Negro and 45% Caucasian; the mean age was 15.6 years; 46% of the students were male. Upon entry into the program all the students had completed grade 10 and the high school grade-point average of the group was 2.17. Some 50% were living with one parent; 33% came from a 1-4 children family; 47% from a 5-8 child en family, and 15% from a 9-12 children family.

Upward Bound, which is a community action program, has been underway since 1966 when it began at Indiana State University. Community agencies and individuals helped with the recruitment of students, contacting high school teachers and counselors for possible candidates. The program has operated not only as a summer school but also during the academic year in order to consolidate the gains made by the students during the summer.

Pre- and posttesting on the Differential Aptitude Tests showed significant gains in percentile rankings for project students.

Personnel: Summer Program

A. Project Director

The director worked full time to coordinate all aspects of the program with community action agencies, high school personnel, community members, project staff, and the university's fiscal officer. He was also responsible for supervising the evaluation of the program. He held a PhD and had administrative experience in similar projects.

B. Administrative Assistant

The assistant worked full time with the director to insure that every phase of the program had been arranged for in terms of space, facilities, personnel, and the scheduling of events. He also assisted the staff with daily problems, supervised testing, wrote reports, and maintained records.

C. Director of Counseling

He worked full time to supervise the overall counseling program, including any psychological testing, the activities of dormitory counselors, and the coordination of the counseling activities with those of the rest of the program.

D. Dormitory Counselors

Six university students who were in summer residence on the campus worked as part-time counselors. They lived in the dormitories with the project students, spending their free time with them each evening from 5:00 p.m., and accompanying them on field trips and Friday afternoon outings to the university's recreation area. They also attended regular staff meetings, kept records of student behavior, and worked with the director of counseling to solve student problems.

E. Language Arts Instructors

Two full-time teachers provided instruction in language arts. Each had an MA in language arts and 2 or more years of teaching experience.

F. Mathematics Instructor

One full-time teacher provided instruction in mathematics and critical thinking.

G. Instructor in Methods and Techniques

One part-time teacher provided instruction and exercises designed to develop good study skills and supervised perceptual training sessions.

H. Physical Education Instructors

Three part-time teachers provided instruction, guidance, and supervision in all areas of the recreation-physical education program.

I. Arts and Crafts Instructor

One part-time teacher supervised the arts and crafts program.

J. Choral Director

One part-time teacher provided music instruction and supervised and conducted the student concerts.

K. Director of Theatre Activities

One full-time teacher provided instruction and supervision in the production of several one-act student plays.

L. Laboratory Supervisor

One part-time university student worked with the instructor providing individualized training with the tachistoscope and audiovisual equipment. He also kept records of each student's progress.

M. Secretary

One full-time secretary handled all the typing, record keeping, and other clerical activities related to the program.

In addition to the above, six Teacher Corps interns provided occasional help with special projects or extra tutoring, when needed.

Personnel: Academic Year

A. Project Director

The director worked part time to supervise the activities of the high school counselors, working with them and the students to plan special programs for both students and parents. He had had experience working in the summer program.

B. Assistant Director

The assistant director worked full time with the project director in supervising the counseling and tutorial activities in the schools.

C. Counselors

Twenty-three counselors from high schools which project students attended met with each student at least once a week to handle any academic or non-academic problems which might arise. They also kept in close touch with teachers to identify the need for tutors, recruited the tutors, planned special programs, and kept the necessary student records. Each had some training and experience in counseling high school students.

D. Tutors

Tutors were employed as needed. They were usually high school seniors with recognized ability in the areas in which students needed help. Teachers or other community persons not teaching professionally, but with academic background, were also employed as tutors. The tutors worked 1 hour a week with students who needed assistance.

E. Secretary

The secretary handled all clerical duties related to the program.

Methodology: General

Summer Program

The general objective of the program was stated by Jordan (1967):

> To create an enduring aspiration to complete a college education or some other kind of postsecondary high school training in each student and to assist him to acquire the basic skills and knowledge needed to realize this goal.

Students participating in the program lived at the Indiana State University campus during the summer. Part of the rationale behind the residential aspect of the program was that being away from his usual life situation would leave the student free to develop different attitudes and to consider possible goals. Also, by living together as a tightly knit group on campus, students would establish meaningful relationships with other human beings which would help them change attitudes and values.

The program director developed a well-structured curriculum for the first summer session, moving toward a progressively less-structured one each successive year. During the first year all courses were required; this was done in order to provide all students with adequate information on which to base subsequent subject selections during years when the courses would be presented as electives.

The first summer the program was organized to keep the students busy most of the time, so as to avoid too much free time when the students, still not aware of all the possible things to do, might lapse into listlessness that could be detrimental and hard to deal with. Resident counselors worked with students in small groups to plan activities for only part of their free time, leaving time for individuals to pursue whatever activities they wished, including napping or just resting. The day began at 7:30 in the morning and classes and other activities continued up to the evening meal. From time-to-time play rehearsals, concerts, and other activities were organized for the evenings.

The Upward Bound instructional curriculum covered the following areas: language arts, mathematics, study methods and techniques, and perceptual skills.

Language Arts. During the first week of the program, the language arts teacher tested the students, using both standardized and unstandardized tests. On the basis of the students' performance, several classroom groupings were formed which reflected both interests and abilities.

The curriculum developed for the language arts program centered around reading, writing, and grammar.

Materials from the Science Research Associates Reading Laboratory were used to increase the students' rate and comprehension in reading. To awaken and maintain their interest in reading for leisure, they were encouraged to use the classroom and community libraries, and were provided with library cards for the Indiana State University and Terre Haute City libraries.

To help develop facility of free-written expression, a "Journal of Opinions and Comments" was kept by each student. In this diary he recorded any feeling or opinion he had about himself, the program, his life situation, and his aspirations. This was recorded on the left-hand side of the notebook and the teacher recorded his reaction the comments on the right-hand side. Besides being good writing practice, the statements by students were a source of feedback on the program and as a result of it, in some cases, aspects of the program were altered on the basis of suggestions or complaints found in the journals.

An experimental method in teaching spelling was tried. The method consisted of increasing the student's perception in recognizing misspelled words by means of timed observation of prepared lists of words, some of which were misspelled.

Another section of the language arts program was devoted to exercises designed to increase students' awareness of acceptable forms of usage by spotting errors in sentences projected on a screen. This was further supplemented by activities geared to increase the understanding of sentence structure.

To make the students feel that their academic experiences were integrated into a meaningful whole rather than being made up of independent parts with nothing to do with each other, the language arts program tried to present materials related to other aspects of the program. For example, one of the plays which was being presented by the drama section was studied during the language arts classes and discussions were held on the structure and meaning of the play. Similarly, exercises in verbal reasoning and a study of word analogues were integrated with the concepts of ratio and proportion being studied in mathematics.

Wherever applicable, the basic technique of "test-teach-test-teach-test" was utilized by the teacher. Since there was a wide range of language arts abilities among the students, however, provisions had to be made for independent study, individual assistance, and small group activities such as discussing what was being learned in class, or criticizing each other's exercises and performance.

Each student was provided with a dictionary, two paperback novels for reading and comprehension exercises, and all paper and pencil supplies needed. The objectives for each day's work were posted on the blackboard at the beginning of the class period so that the students had a clear idea of what was to be achieved during the class period.

Mathematics. Mathematics classes during the first summer session were devoted primarily to arithmetic, leaving algebra for the following year. Whenever possible, the teacher tried to use various approaches that would maintain the interest of the students. Part of the class periods was devoted to "new mathematics," and sets and module systems were introduced and explained.

To help teacher-student relationships and to give students encouragement, the teacher gave each student a daily opportunity to respond at least once; he also tried to talk with each student during the class period and discuss what progress was being made.

Study Methods and Techniques. The purpose of this part of the program was to help students to identify their poor study habits, and to replace them with more efficient ones. At the same time, students were expected to develop an understanding of the principles underlying sound study methods and techniques.

The first phase of the program involved the teaching of basic learning theory principles on a rather elementary level. This was done through films and by lecture-discussion sessions. The second phase was a laboratory demonstration of how the learning principles which had been discussed worked. The third phase involved the learning of the PQRST study technique.

Perceptual Skills. This section of the program provided the students with instruction on the most basic level of reading experience: the perception of words. To provide this training the tachistoscope was used. Two groups of approximately 20 students met the first 4 weeks of the program and another 2 groups the second 4 weeks. The program started with an introduction to the tachistoscope by means of the Familiar Form Series and the Geometric Form Series. This was followed by 2 to 4 days of noun and "non-noun" word (such as verbs and adjectives) recognition, leading to digit recognition. Finally, the students were introduced to grouped number recognition beginning with three digits and progressing as far as six. At that point groups of 10 to 14 digits were presented and the students were asked to record the first and last digits, the first two and last two digits, and so on. The last phase of the program involved short phrase and sentence recognition, and finally longer series of phrases and sentences.

All the work with the tachistoscope was done using the speed setting of 1/100 of a second because it appeared more challenging to start the students with simple forms at fast speeds and work up to more complex forms. By working gradually from simple forms to more abstract materials, students were rarely faced with "impossible" recognitions and were thereby provided with a situation in which reinforcement was always possible.

Counseling. The Upward Bound counseling program helped students to change certain behavior patterns, and enabled them to recognize and utilize their latent resources. The emphasis was on the student becoming self-disciplined.

Counselors interviewed each student during the first few weeks of the program. The interview records were studied by the director and the counselors, and a counselee's problems were discussed with him subsequently.

Small-group sessions were also held to discuss a variety of topics ranging from academics to sex; these sessions helped to break down barriers between students, and helped them to feel more comfortable with people of different backgrounds.

Cultural Activities. One of the purposes of the Upward Bound program was to engage the students in creative art activities that would prove challenging and exciting. This was provided by the art, music, and theatre activities. During the 2-hour art periods, students were free to engage in a variety of activities like painting, ceramics, sketching, or discussions. The music class met daily for a 70-minute period with breaks. The teacher tried to impart musical skills to his students and worked with the talent available in preparing a musical program to be performed at the end of the summer session. To provide them with theatre experiences and arouse and sustain interest in this new medium, the students participated in the staging of a comedy.

Physical Education. The physical education program provided activities for the boys which included instruction and free-play in several games, gymnastics, swimming, and diving. The program also offered some camping and outdoor life.

Various extracurricular activities during the first summer included visits to Indianapolis and Chicago, taking part in a TV show, picnics, and open houses at the homes of Upward Bound staff members.

Academic Year Program

The purpose of the academic year phase of Upward Bound was to consolidate the gains made by the students during the summer and increase their probability of continuing their higher education. To achieve that purpose, counseling, tutoring, Upward Bound Clubs, and parents' meetings were provided.

Counseling. Counselors from high schools which Upward Bound students attended joined the program. Each counselor met with his student at least once a week to review his work at school, discuss problems, and plan any course of remedial action that might be needed. A full record of activities and decisions relevant to each student was kept by the counselor and regular reports were submitted to the Upward Bound office. In this way a file was built for each student so that any background information needed to anticipate problems or seize opportunities was readily available.

Before joining the program, counselors attended a preservice orientation period to gain an understanding of the program and their responsibilities to the students.

Tutoring. Counselors discussed the academic progress of the students with their teachers, and if tutorial help was needed tutors were assigned to the student. Each student generally worked with his tutor 1 hour a week.

Upward Bound Clubs. At the end of the summer session Upward Bound Clubs were formed in the high schools where there was a sufficient number of students belonging to the program. An Upward Bound newsletter was established as a means of keeping students in touch with each other, and reunions were organized to bring students, teachers, and counselors together from time-to-time. During these reunions activities ranged from attending a football game and discussion of plans for the following summer, to private interviews with counselors or teachers.

Parents' Meetings. Parents were invited to meetings with counselors. They also participated in sessions designed to give parents an opportunity to learn about the program, express their feelings about it, and exchange views on ways to help students continue their education after high school.

Methodology: Specific

A variety of innovative procedures and materials were used in the program. Some found to be successful are described below (Teachers College Journal, 1967):

A. The Word Game

"Several decks of 250 cards were made. Each deck of 250 cards was broken down into four sub-decks consisting of 170 white cards (on which one word was written which could function as noun, adjective, verb, or adverb), a pink deck of 25 cards (containing interrogative, relative, and personal pronouns), a blue deck of 35 cards (containing conjunctions and prepositions) and a yellow deck of 30 cards (containing definite and indefinite articles and interjections). To play the game, each of the sub-decks is shuffled, the dealer deals seven white cards to each player. Each player is then permitted to draw one or two cards from each of the pink, blue, and yellow decks. After examining all of his cards each player selects two cards that he does not want and passes them to the player on his left. This much of the procedure was the same for all games. The object of this particular game is to make a grammatically sound sentence that makes sense out of as many words as is possible in the hands dealt. A point is given for every white card used, and if all seven are used there is an additional bonus point. Successive hands are dealt until 25 or more points are accumulated by one person. The person who makes 25 points wins the game and is given a small token prize of some kind.

"One of the ideas behind the game was to get the students into the habit of understanding sentence structure in terms of the functions of the words which make up a sentence. It came to our attention that a good number of the students thought that a given word was either a noun or a verb or some other part of speech but could not fall into the category of more than one part of speech. On the white cards, for instance, one word is printed with several possible endings to the word listed in parentheses with a code in the lower left-hand part of the card indicating the different parts of

speech the word could be. The card that has the word 'paint' on it may be used as an example. The word could be paint, paint(ed), paint(er), or paint(ing), and these various words could function as nouns, verbs, adjectives in the form of past participles, gerunds, and so on.

"Though there is evidence that underachievers do not respond constructively to competition, the spirit of the game seemed to transcend that problem, and in any case the competition was not so much that of one person against another as it was each person trying to make out of his own individual hand of cards, which had been randomly dealt, the best possible sentence using the greatest number of cards. Since the class had to be broken down into small groups in order to play the games, this provided another change of pace and increased the variety of activities in the language arts program."

B. Dictating Units

IBM portable dictating units were used in the language arts class. "Special materials were prepared for oral presentation to a class which had been divided into four small groups of five, each one of which had a small dictating unit. After the members of each group had been instructed in the use of the dictating unit and had had a chance to practice using it, the specially prepared talks were then presented to the class. Each verbal presentation contained material that was engaging and interesting. Each one contained a discrete amount of information so that some measure of information recalled could be made. The purpose of this exercise was to develop the student's capacity to listen carefully to a verbal communication, recall as much of it as is possible accurately, and represent it verbally without editorial comment and with or without a reorganization of content. One of the topics presented concerned the controversy between the tobacco companies and the Surgeon General's report linking smoking to lung cancer; another concerned the charges by independent writers that the Warren Report on President Kennedy's assassination was incomplete or erroneous because certain crucial kinds of information were missing, notably the autopsy photographs and X-rays. Interest ran high and students were generally very surprised at the amount of information which they could, with concentration, retain and re-express verbally. Some students could remember as much as 99% of the facts given. Another purpose behind this exercise was to develop the student's ability to weed out essential information from non-essential information in a verbal communication so that facility in taking relevant notes from classroom lectures might be increased.

". . . Teacher Corpsmen, who were assisting in the language arts program, prepared short 5 or 10 minute speeches on various topics such as the two mentioned above for presentation to the class. After each presentation one person in each group would summarize the speech he had heard on the belt of the IBM dictating unit. These would be played back immediately, and other members of the group would then identify gaps in the information recorded or would point out distortions or inaccuracies in the recording. In this way each student was able to have immediate feedback on his performance. For most students, these exercises turned out to be a positive experience, since nearly everyone found that he could

maintain attention for a relatively long period of time with a high degree of intensity and recall the material with an admirable degree of accuracy.

"A third purpose behind the use of the IBM dictating units concerned the need for students to have realistic self-images. Many of the students had never heard recordings of their own voices before. For some this turned out to be almost painful. In every case it afforded the opportunity for the student to witness his own need for improvement in speech and an increase in his ability to communicate verbally."

C. Language Study Units

Study units in verbal word reasoning and word analogies and which also helped students to increase vocabulary were prepared for the students. "By way of introductory activities to this unit, a full discussion of the meaning of verbal reasoning was held, followed by an explanation of test scores in verbal reasoning, and of the need for improvement as a part of college entrance examination requirements. Time was taken to relate the concept of verbal reasoning to mathematical proportions (i.e., 2 is to 4 as 3 is to 6). Exercises were then set in defining the relationships between words. As an example students were asked to explain the relationship between the word coop and the word chicken (a coop confines a chicken) or the relationship between amplifier and loud (an amplifier makes a sound louder).

After the ability to state or define a relationship between words began to develop, exercises in supplying one missing term in a proposition were given to the students. For instance, such propositions as the following were presented: sly is to fox as wise is to ____ (owl); ____ is to kite as leash is to dog; mint is to ____ as bakery is to bread. As soon as facility in supplying one missing term in the proposition had been developed, students worked together in small groups to prepare statements like the above, making up their own propositions with the criterion that they had to be sensible and true. A subsequent lesson in verbal analogies involved supplying the last two missing terms in a proposition. For instance, bed is to lie as ____ is to ____ (chair is to sit); or length is to long as ____ is to ____.

Small committees were then formed for the purpose of preparing similar exercises. We found that having the students actually make up the problem helped them to develop understanding of the reasoning process involved in working with analogies. Finally, the students worked many exercises in supplying the first and last terms of the propositions. For instance, ____ is to lie as chair is to ____; or ____ is to finger as leg is to ____. Students were given a master worksheet with basic material for constructing verbal analogies and were required to prepare their own lists of verbal analogies with the extreme terms missing. Each student reported to the class and the class criticized his work. Additional periods were scheduled for practice in supplying the second and the third terms (prison is to ____ as ____ is to chicken); and in determining first and last terms through verbal reasoning (____ is to vanquished as win is to ____)."

D. The PQRST Study Technique

The PQRST study technique provided a step-by-step "approach to learning new material and is firmly rooted in the findings of learning psychology.

The letters stand for each stage of the study system: preview, question, read, state, and test." The PQRST system was presented to the students by use of a programmed text (Staton, 1964).

Evaluation

A. Measures of Achievement

The only year in which cognitive achievement was evaluated by standardized tests was 1966. In the first 2 days of the program that summer, all students took the Differential Aptitude Test; 8 weeks later, they took an alternate form of the same test. No comparison group was available, hence claims for the success of the program are based on changes in the students' status on national norms published by the test manufacturer.

The Differential Aptitude Test comprises six subtests of verbal reasoning, numerical ability, language usage and grammar, mechanical reasoning, space relations, and abstract reasoning. A raw score can be derived for the whole battery; the authors advise against this because it involves adding together weighted scores. Tables are provided, however, from which national percentile rankings can be derived for each subtest. Jordan (1967) has reported the results of the Upward Bound program in terms of these percentile rankings.

The DAT yielded pre- and posttest scores for 60 students. Of these 60 only 3 students obtained lower average rankings on posttest. The average gain was 11 percentile ranks; on pretest the group stood at the 35th percentile nationally, while on posttest it was at the 46th percentile.

The significance of these gains was tested using the Wilcoxon Matched-Pairs Signed-Ranks Test. National percentile rankings were assigned to each subtest score, the magnitude and direction of change in percentile rankings from pretest to posttest were calculated, and an average change in percentile ranking was determined for each student. Analysis of these change scores showed a difference significant beyond the 1% level.

B. Other Evaluation Measures

Self-image of the students was measured using a locally developed Q-sort test based on the Butler-Haigh Q-sort as used by Dymond and others. The majority of students showed positive changes, and the Wilcoxon Matched-Pairs Signed-Ranks Test indicated that these changes were significant beyond the 5% level.

Other attitudinal assessments, informally made, supported the Q-sort results.

Budget

The total operating cost for both the summer and regular year programs for 1966-67 was $109,359. Of this, $98,000 came from a Federal grant under Title II-A of the Economic Opportunity Act, and $11,359 was contributed by non-Federal sources ($1,450 by the participating high schools and $9,909 by Indiana State University). The 1966-67 program operated for 13 1/2 months, from April 15, 1966 to June 1, 1967. The summer phase cost about $80,000, of which about half was spent on personnel, and a quarter on accommodations (food as well as lodging).

Modifications and Suggestions

Since 1966, the program has been broadened to provide more opportunities for the student to select those subjects which interest him most and to include a variety of methods designed to increase motivation and achievement.

The project mathematics and language arts classes were dropped, and regular classes which are offered for credit by the Indiana State University Lab School and the university itself were substituted in their place. This change was based on requests from the majority of the project students, who felt that non-credit classes were "a waste of time." Each student now takes two non-concurrent, 5-week courses. Those students who will be reentering high school take high school courses that they had missed or found difficult, while students who will be entering college take basic freshman courses.

Two methods have been introduced for promoting success in academic courses. The dormitory counselors have been replaced by full-time tutor-counselors who aid the students with both their studies and any social-emotional problems. Counselors are chosen who will be on the campus during the following academic year, so that they will be able to continue assisting the Upward Bound students during their college years. A fine for absenteeism has also been added. Project students are fined $2 from their $10 weekly stipend for every class that they miss.

The non-academic portion of the program has also been altered to provide greater variety and freedom of choice in enrichment activities. In addition to the regular courses in physical education, art, music, and dramatics, special classes have been added in photography, dress design, creative writing, and instrumental music (guitar and drums). Courses which include large culminating activities have been found to be most successful in the past. Therefore, all enrichment classes are designed to include a large final project, if possible. The students in the creative writing and photography classes combine talents to publish a booklet of essays and illustrations; the dress design students stage a style show to display the articles that they have made in class; and the students of instrumental music give a talent show. A social studies course entitled, "The History of Minorities," has also been added.

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For Further Information

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